



Pingelly Waste Water Treatment Plant Upgrade

Client:
Water Corporation

Location:
Pingelly WA

Construction Period:
Sep 14 – Apr 15

Project overview

We were awarded the Pingelly WWTP Upgrade Project by Water Corporation. The works comprise the construction, testing and commissioning complete with all ancillary works. The upgrading works basically progressed in the following sequence:

- Construction of a new secondary facultative pond including clay liner, inflow pipework and Imhoff tank bypass pipework;
- Prior to the introduction of raw waste water to the new secondary facultative pond, the pond was filled with potable water and tested;
- After pond testing, diverting inflow from the newly constructed access chamber to the new secondary facultative pond via a new, manually screened access chamber;
- Drained maturation pond into secondary facultative pond and desludge maturation pond into geobags. At the same time carried out Imhoff Tank remedial works;
- Upgrade the existing maturation pond and place/compact new clay liner;
- Connecting maturation pond bypass pipework from access chamber to existing Shire Transfer pond.

The earthworks structures / treatment ponds were constructed from the in-situ sandy clay which was considered suitable for use as embankment fill and it was anticipated that careful selection of in-situ clay sample and good workmanship on clay is required to meet the specification.

Significant achievements and benefits

According to the specification, the acceptable clay liner should have material properties with percentage fines of more than 25% passing through 75 micron sieve; Liquid limit of 30% to 70% and plasticity index of more than 15. The Emerson Class number for the clay is 5 to 6 and more importantly, the permeability of the material should be less than 10^{-9} m/s.

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DM Civil had undertaken our own testing to confirm the clay liner requirements set out above are met.

The clay liner were placed in loose lift thickness of not greater than 250 mm and compacted in uniform layers of thickness appropriate to meet the criteria of 96% MMDD. (Maximum Modified Dry Density)

The moisture conditioning requirements specified (+2% to -2% relative to OMC) was achieved by drying or the addition of moisture as appropriate. Water spraying equipment was used for this purpose so that it was capable of distributing water uniformly in controlled quantities over uniform lane widths. The fill was mixed mechanically to ensure uniform distribution of moisture before commencing rolling.

The moisture conditioning of clay was definitely not an easy task. It looked simple yet it took us a while through numerous occasions of trial and error to get it right.

The overall benefit of the project is that through a good quality control of the workmanship, the client received a high standard of work and the team worked cooperatively with the Water Corporation to complete the job in an effective, safe and timely manner.

Contact DM Civil to discuss your waste water infrastructure projects.

GUARANTEED PERFORMANCE

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